

WHAT IS CLAIMED IS:

1. An optical encoder comprising:

a scale having an optical grating;

a plurality of photoreceptor elements that are movable with respect to the scale and that are disposed in relation to a pitch of the optical grating;

light source means having at least two light sources for irradiating the photoreceptor elements through the scale by using light rays from at least two different directions; and

control means for switching light-emitting status of the at least two light sources;

wherein the control means obtains relative-position information of the scale and the photoreceptor elements by processing information obtained from the light-emitting status of the light sources when the light-emitting status of the light sources is switched.

2. A optical encoder according to Claim 1, wherein one of the at least two light sources is selectively caused to emit light, and wherein the relative-position information is obtained based on photoreception signals received by the photoreceptor elements in response to the light emitted.

3. An optical encoder according to Claim 1, wherein a light-emitting position of the light sources is changed when movement of the scale is stopped, and wherein the relative-position information is obtained from information detected by the photoreceptor elements when the light-emitting position of the light sources is changed.

4. An optical encoder according to Claim 1, wherein intensities of light emitted by the at least two light sources are changed when movement of the scale is stopped, and the relative-position information is obtained from information detected by the photoreceptor elements when the intensities of light emitted are changed.

5. An optical encoder according to Claims 1, 2, 3 or 4, wherein signals having at least two different phases are obtainable by the plurality of photoreceptor elements when the at least two light sources are switched.

6. An optical encoder comprising:
a scale having an optical grating;
a plurality of movable photoreceptor elements, wherein each photoreceptor element is positioned based on a pitch of the optical grating;
a first light source and a second light source for

providing light to the photoreceptor elements,

wherein the first light source provides light in a first direction, and

wherein the second light source provides light in a second direction; and

a switch for controlling the light-emitting status of the first light source and the second light source,

wherein the switch is capable of using the light emitting status of the first and the second light sources to acquire relative-position information of the scale and the photoreceptor elements.

7. An optical encoder according to Claim 6, wherein intensities of lights emitted by the first light source and the second light source are changed when movement of the scale is stopped, and the relative-position information is obtained by detecting the change in intensities of lights emitted.